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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,140	04/15/2004	Erik Brandon	CIT003	8755

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TOPE-MCKAY & ASSOCIATES  
23852 PACIFIC COAST HIGHWAY #311  
MALIBU, CA 90265

EXAMINER

DANG, PHUC T

ART UNIT PAPER NUMBER

2818

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/826,140

Applicant(s)

ERIK BRANDON

Examiner

PHUC T. DANG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on amendment filed on July 20, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 9, 11-15, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 10 and 16-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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### **DETAIL ACTION**

1. This application claims benefit of 60/463,064 filed on April 15, 2003.

### **Response to Arguments**

2. Applicant's arguments filed on July 20, 2006 have been fully considered but that are not persuasive.

### **Oath/Declaration**

3. The oath/declaration filed on April 15, 2004 is acceptable.

### **Claim Rejections - 35 USC § 102**

4. Claims 1-3 are rejected under 35 U.S.C. 102 (e) as being anticipated by Murti et al., hereafter "Murti" (U.S. Publication No. US 2003/0228718 A1).

Regarding claims 1 and 3, Murti discloses a apparatus and a method of fabricating a field effect transistor comprising:

depositing a dielectric layer 14 on a substrate 16;

placing a polymer composite over at least a portion of the dielectric layer 14 to form drain 20 and source contacts 22, the polymer composite having a conducting filler [paragraph [0050]];

forming an organic semiconductor layer 12 over at least a portion of the polymer composite, the organic semiconductor layer 12 providing a channel between the drain 20 and source contacts 22 [Fig. 1 and paragraph [0044]].

Regarding claim 2, Murti discloses the act of forming an organic semiconductor layer further comprises acts of dissolving an organic semiconductor in a solvent forming a semiconductor solution; depositing the semiconductor solution over at least a portion of the

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polymer composite; and evaporating the solvent from the semiconductor solution such that the organic semiconductor layer remains [paragraph [0002]].

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-5, 8-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murti et al., hereafter “Murti” (U.S. Publication No. US 2003/0228718 A1).

Regarding claims 4 and 12, Murti discloses an apparatus and a method of fabricating a field effect transistor comprising:

forming a first contact pattern 18 on a substrate 16; depositing a dielectric layer 14 on the substrate 16;

depositing a polymer composite having a conducting filler to form a second contact pattern connected with the dielectric layer 14 ; and

providing an organic semiconductor layer 12 for connecting a first portion 20 of the second contact pattern with a second portion 22 of the second contact pattern [Fig. 1 and paragraph [0044]].

Murti discloses the features of the claimed invention as discussed above, but does not disclose the contact pattern is forming on the supporting structure. However, Applicant’s specification suggested that the supporting structure could be comprised of other rigid material

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such as glass or a ceramic, or could be a flexible substrate as cited on page 8, lines 46-48, which has a same structure as disclosed by Murti [paragraph [0049]].

Therefore, claims 4 and 12 are obviously rendered over Murti.

Regarding claim 5, Murti discloses depositing a dielectric layer includes an act of selecting a dielectric material from a group consisting of: silicon dioxide, silicon nitride, aluminum oxide, tantalum oxide, hafnium oxide, polyimide, and polyvinylphenol [paragraph [0051]].

Regarding claim 8, claim 8 is rejected as similar to claim 2 above.

Regarding claim 9, Murti discloses the act of dissolving is preformed with a solvent selected from a group consisting of: toluene, xylenes, aromatic solvents, and aliphatic solvents [paragraph [0042]].

Regarding claim 11, Murti discloses the acts of depositing a polymer composite and providing an organic semiconductor layer are preformed in an order selected from a group consisting of: first depositing the polymer composite, then providing the organic semiconductor layer, and first providing the organic semiconductor layer, then depositing the polymer composite [Figs. 1-2].

6. Claims 13-15 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murti et al., hereafter "Murti" (U.S. Publication No. US 2003/0228718 A1).

Regarding claim 13, Murti discloses an apparatus of a field effect transistor comprising:

a substrate 16 including a first contact pattern 18;

a dielectric layer 14 disposed on the substrate 16;

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a polymer composite connected with the dielectric layer 14, the polymer composite providing a second contact pattern, the second contact pattern having a first portion 20 and a second portion 22, where the first portion 20 and the second portion 22 are separated by a distance; and

an organic semiconductor layer 12 connected with the dielectric layer 14, the organic semiconductor layer 12 allowing for an electrical connection between the first portion 20 and the second portion 22 of the second contact pattern [Fig. 1 and paragraph [0044]].

Regarding claim 14, Murti discloses wherein the supporting structure is a flexible Substrate [paragraph [0049]].

Regarding claim 15, Murit discloses the dielectric layer is selected from the group consisting of: silicon dioxide, silicon nitride, aluminum oxide, tantalum oxide, hafnium oxide, polyimide, and polyvinylpheno [paragrapf [0051]].

Regarding claim 19, Murti discloses the organic semiconductor layer is connected with the dielectric layer by placing the organic semiconductor layer on a portion of the dielectric layer in solution form, wherein a portion of the solution is evaporated leaving the organic semiconductor layer [paragrapf [0002]].

Regarding claim 20, Murti discloses at least a portion of a thickness of the organic semiconductor layer 32 lies between the polymer composite 40 and 42 and the dielectric layer 34 [Fig. 2].

#### **Allowable Subject Matter**

7. The following is a statement of reason for the indication of allowable subject matter:

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Claims 6-7, 10 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the Prior art of record does not disclose the depositing a polymer composite is preformed by a printing technique selected from: stencil printing, and inkjet printing as cited in claim 6 and the act of depositing a polymer composite is preformed with the conducting filler selected from a group consisting of: graphite, silver, carbon, conducting derivatives of carbon, and gold as cited in claim 7 and the act of depositing a polymer composite is preformed in an atmosphere as cited in claim 10 and the polymer composite is a polymer thick-film ink having a conducting filler as cited in claim 16 and the polymer composite is disposed with respect to the dielectric layer by stencil printing or inkjet printing as cited in claim 18.

Claim 17 is depend on claim 16, then, it also would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's arguments filed July 20, 2006 have been fully consider but they are not persuasive.

Applicant argues that Murti neither discloses nor teaches the method of placing a polymer composite over at least portion of the dielectric layer. Examiner does not agree. Murti discloses on the insulating layer (dielectric) 14 are two metal contacts, source electrode 20 and drain electrode 22 (the electrodes can be fabricated from a materials of conducting polymer ... as cited in paragraph [0044], then, the material is already deposited before forming the gate electrodes) and formed an organic semiconductor layer 12 on the source electrode 20 and drain electrode 22

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as illustrated in Fig. 1.

Applicants state on pages 3 and 5 that Murti discloses in paragraph [0050] only the methods of preparing the gate electrode layers, which have different requirements for preparation than drain and source contacts that are eventually coated with an organic semiconductor layer. Examiner, however, see nowhere relating to the above different requirement between the gate electrodes and the drain and source contacts. Also on page 3, Applicants state that the drain and source contacts may be deposited in an atmosphere and not in a vacuum as required for sputtering and vacuum deposition technique. However, Murti disclosed the advantage of the method of fabricating electronic devices by the above process as cited in paragraph [0054]. Examiner confirms that this limitation is not disclosed in the claimed invention.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE MONTHS shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



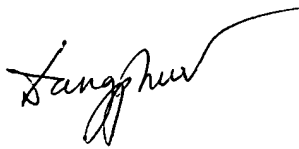
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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuc T. Dang whose telephone number is (571) 272-1776. The examiner can normally be reached on 8:00 am-5:00 pm.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey O Minsun can be reached on (571) 272-1835. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and After Final communications.

11. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Phuc T. Dang

A handwritten signature in black ink, appearing to read 'Phuc T. Dang', with a long, sweeping horizontal line extending to the right.

Primary Examiner

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